

chene in the greater size and strength of the middle as compared with the lateral metacarpals.

The articulation at the distal extremity of the proximal phalanges (fig. 5, Pl. XI.) is simple, and not divided into two pulleys by a longitudinal ridge; it is slightly concave from side to side; but in its extent upon the anterior and posterior surfaces of the bone indicates a freedom of flexion and extension of the toes, which harmonizes with the structure of the joint above.

The proximal articulating surfaces of the second phalanges (fig. 7, Pl. XI.) corresponds of course to those to which they are adapted; they are, however, characterized by sending upwards an obtuse process from the middle of their anterior margin. The distal articulating surfaces (fig. 8, Pl. XI.) resemble those of the proximal phalanges, but extend further upon the back part of the phalanx than the front, indicating the more horizontal position of the second phalanges.

The last phalanx, does not resemble the neatly defined ungulate phalanges of the Ruminantia, and Solipedia, but has the irregular form characteristic of those of the Pachydermata. It is wedge-shaped, broader than it is long, with a rugged surface, except where it plays upon the distal end of the second phalanx, where it is slightly concave in one direction, and convex in the other, (figs. 7 and 9, Pl. XI.) A portion of this phalanx extends backwards behind the articular surface, as in the corresponding bone of the Palæothere and Rhinoceros.

The femur of the Macrauchenia (fig. 1, Pl. XII.) is full two feet in length, and consequently longer than in any known Camel or Rhinoceros; as compared with its transverse diameter it is much longer than the femur of the latter animal: in the proportion of its breadth to its length, and the expansion of its extremities as compared with the diameter of the shaft, it more resembles that of the Camel. The femur of the Giraffe deviates from that of the Macrauchenia in the excessive expansion of its distal extremity. But the most striking evidence deducible from this bone, of the affinity of the Macrauchenia to the true Pachydermatous type is afforded by the evident traces of a third trochanter, the outline of which is conjecturally restored in the figure. Of the Pachyderms which have this characteristic structure, the extinct Palæothere offers the nearest resemblance to the Macrauchene in the general form and structure of the femur.

The head of the femur in the Macrauchene (fig. 2, Pl. XII.) presents the form of a pretty regular hemisphere; it is less flattened above, and is directed more obliquely inwards than in the Palæothere: the neck supporting it does not project so far from the shaft as in the Palæothere or Tapir, but farther than in the Camel. The great trochanter rises above the level of the head; in which structure and in the depression between the head and trochanter, the femur of the Macrauchene offers a character intermediate between the Tapir or Palæothere, and the Camel. The lesser trochanter is a slight projection from a ridge

of bone which is continued from the under part of the head of the femur to the inner surface of the shaft. In the Palæothere the lesser trochanter is situated more towards the posterior surface of the femur; so that, in this particular, the Macrauchene approaches nearer to the Camel. Cuvier makes no mention of the condition of the depression for the *ligamentum teres* in the Palæothere. Among existing ordinary Pachyderms the Hippopotamus presents no trace of the insertion of a *ligamentum teres* in the head of the femur; in the Camel the place of its insertion is indicated by a well-marked circumscribed pit; in the Tapir a similar circular depression is situated close to the inferior margin of the articular convexity. The ligament was undoubtedly present in Macrauchenia, but the place of its insertion is a broad and deep notch leading from the under and back part of the head of the bone a little way into its articular surface: this I regard as another of those interesting transitional structures with which the remains of the Macrauchenia, few and imperfect though they unfortunately are, so freely abound.

The femur of Macrauchenia, in the flatness of the back part of its neck, and the elongated form of the post-trochanterian depression, resembles that of the Camel rather than that of the Palæothere; and the same resemblance is shown in the cylindrical figure, straightness, and length of the shaft. The depth of the trochanterian depression, and the incurvation of the strong ridge continued downwards from the great trochanter are individual peculiarities in the Macrauchenia.

A great part of the third trochanter is broken off; but from the remains of its base we see that it had the same relative size as in the Palæothere; but it is situated at the middle of the shaft of the femur, and consequently lower down than in the Palæotheres and Tapirs. In the general form and relative size of the condyles at the distal extremity of the femur (fig. 3, Pl. IX. and XII.) the Macrauchene is intermediate to the Camel and Palæothere, but resembles more the latter. In the articular surface for the patella, it deviates somewhat from the Palæothere, having this part longer in proportion to its breadth, more regularly and deeply concave from side to side, and with its lateral boundaries more sharply defined. In all these points the Macrauchene approaches the Camel: the same affinity is shown in the protuberance above the inner condyle; but in the extent of the posterior projection of this condyle (fig. 3, Pl. IX.) it exceeds the Camel and Palæothere, and displays an intermediate structure between these species and the Hippopotamus.

There is a rough crescentic depression above the outer condyle where the *linea aspera* begins to diverge; the corresponding depression is deeper in the Hippopotamus, while in the Camel it is represented by a roughened surface only, which is not depressed. In the fossa between the rotular articulation and the external condyle the Macrauchene resembles the Camel: the interspace of the